

# REPPERGER RESEARCH INTERN PROGRAM

RESEARCH PROJECT #: AFRL-RHD-23-10

## Assessing Visual Performance With and Without Eye Protection

**PROJECT DESCRIPTION:** This project concerns applied research to evaluate and assess performance of flight relevant tasks under optical glare (laser and broadband) with and without protective filters. This program leverages vision science research to establish requirements, define metrics, and support development and evaluation of protective technologies. Experiments focus on the effect of glare and protective filters, separately and in combination, on visual performance using flight relevant tasks and measures of eye tracking behavior. The goal is to develop objective performance-based metrics for predicting the acceptability of protective technologies. Additionally, this research will validate models of flash blindness recovery, the visual effects of laser eye protection, and the effects of filters on performance.

**ACADEMIC LEVEL:** Master's, Bachelor's, PhD

**DISCIPLINE NEEDED:**

- Psychology
- Human Factors
- Vision Science

**RESEARCH LOCATION:** JBSA-Fort Sam Houston, San Antonio, Texas

**RESEARCH MENTOR:** Barry Goettl, PhD  
Engineering Psychology, University of Illinois, 1987



Dr. Goettl is a Senior Research Psychologist for the Bioeffects Division of the Air Force Research Laboratory. He is currently project manager for vision science and human performance research projects in the Optical Radiation Bioeffects Branch, conducting research on visual performance as well as aircraft cockpit evaluations of optical filters. Previously he conducted and published research in the areas of skill acquisition and computer-based training. In addition, he developed and transitioned a threat recognition and avoidance trainers and served as liaison to the Air Force Information Operations Center. Dr. Goettl received a B.S. in psychology from the University of Dayton, and master's and Ph.D. degrees in engineering psychology from the University of Illinois at Urbana-Champaign. He is a Fellow of the Human Factors and Ergonomics Society, an Associate Editor of Human Factors, and member of the HFES Executive Council. *Photo courtesy of the U.S. Air Force Research Laboratory.*